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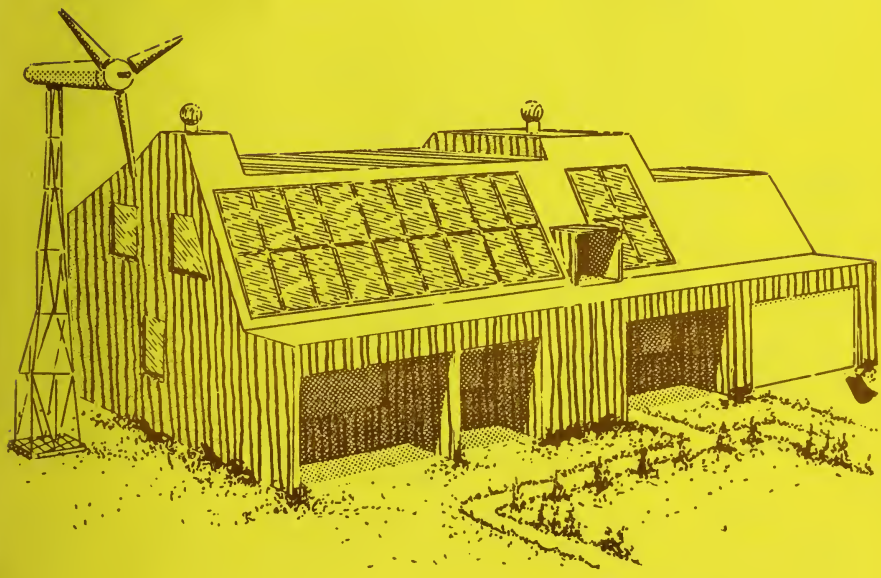
RENEWABLE ALTERNATIVE ENERGY

STATE DOCUMENTS

RESEARCH, DEVELOPMENT, and DEMONSTRATION PROGRAM



REPORT TO THE LEGISLATURE

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
ENERGY PLANNING DIVISION
FEBRUARY 1977
DNRC

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BACKGROUND

The Renewable Alternative Energy Research, Development, and Demonstration Program was authorized in 1975 by Senate Bill 86 (Sections 84-7407 through 84-7412, R.C.M. 1947). Under the program, administered by the Energy Planning Division of the Department of Natural Resources and Conservation, grants are awarded for non-commercial projects which research, develop, and demonstrate the use of renewable energy sources such as solar, wind, geothermal, and biomass. All resident Montana individuals and organizations are eligible to apply for grants. Grants may be given for a period of no longer than one year but may be renewed. All information resulting from the projects will be made available to the public.

GRANTS AWARDED

During 1976, 93 applications were received requesting funding of over three million dollars. The table below summarizes the Renewable Alternative Energy Program's first funding period.

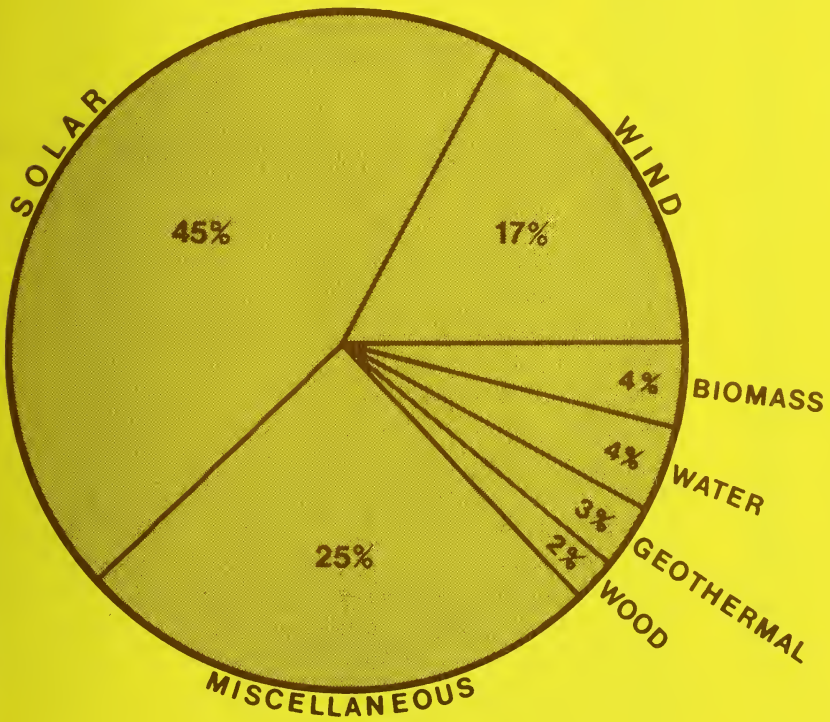
Energy Source	Applications Received		Grants Awarded	
	No.	Requested	No.	Funded
Solar	61	$1,828,404.20	21	$220,235.13
Wind	11	281,924.49	4	81,495.00
Geothermal	3	144,971.28	1	15,000.00
Wood	4	87,209.36	3	9,000.00
Water	3	156,327.00	1	19,885.00
Biomass	6	184,658.00	1	19,480.00
Miscellaneous	5	319,441.00	2	124,480.00
TOTALS	**93**	**$3,002,935.33**	**33***	**$489,575.13**

**NOTE: Although 33 grants were awarded originally, three of these were subsequently cancelled. One (solar) applicant moved out of state, and two (one solar and one wood) could not agree to the terms and conditions of the grant agreement. The three cancellations represent $6,364.97.*

For a further explanation of the thirty grants awarded, refer to the **TYPE AND DISTRIBUTION OF PROJECTS** map included in this brochure.

As can be seen from the table and the following chart, solar projects attracted the largest number of applications and received the greatest percentage of grant funds.

PERCENTAGES OF TOTAL GRANT FUNDS — 1976



PERSONNEL

The program staff consists of a Program Manager and an Engineer working under the general supervision of the Administrator of the Energy Planning Division. Secretarial and writing assistance are also occasionally required.

TYPE AND DISTRIBUTION OF PROJECTS — 1976

1. Solar cabin and hot water, $20,000
   Jim Anderson
2. Solar school, $10,750
   Belgrade Public Schools
3. New Western Energy Show, $24,480
   Alternative Energy Research Organization
4. Solar home heating, $11,000
   James W. Coons
5. Solar/wood home heating, $10,000
   Charless W. Fowlkes
6. Solar monitoring, $29,790
   Charless W. Fowlkes
7. Wood heat and storage for home, $4,000
   S. Richard Hagan
8. Solar home heating, $10,500
   David Leavengood
9. Solar heating of domestic water, $4,000
   Kenneth Nordtvedt
10. Wind energy/synchronous inverters, $7,346
    V. Hugo Schmidt
11. Biomass, $19,480
    John E. Robbins
12. Wood, $1,000
    Robert Zychek
13. Solar home heating, $15,000
    Charles L. Herndon
14. Center for Innovation, $100,000
    Montana Energy and MHD Research and Development Institute, Inc.
15. Paddlewheel-type windmill, $4,800
    LeRoy Gustafson
16. Solar home heating, $3,805
    Mike Stoltz
17. Solar home heating, $8,743.70
    L. Clark MacDonald
18. Solar/heat pump home heating, $7,166.50
    William B. Tomlinson
19. Wind energy system study, $5,093
    Drapes Engineering
20. Geothermal home heating, $15,000
    William M. Spilker
21. Solar-aquaculture greenhouse, $1,532
    James Hull
22. Solar home heating, $12,750
    James E. Taylor
23. Solar home heating, $10,500
    Sherman S. Cook
24. Ten residential solar air systems, $26,875
    District 11 Human Resources Council
25. Solar home heating, $4,000
    John R. Means
26. Solar home heating, $11,362
    Gary L. Owen
27. Solar home heating, $8,000
    Richard P. Sheridan
28. Wind electric system, $64,256
    Independent Power Developers
29. Three hydroelectric systems for remote location, $19,885
    Independent Power Developers
30. Solar/wind/wood home heating, $12,095.96
    Thomas M. Power

EVALUATION PROCEDURES

Procedures and policies for the administration of the Renewable Alternative Energy Program have been defined in the rules adopted by the Department. The following procedures were established for evaluating and processing applications.

1. *Is the application complete?*

   The program staff reviews each application for content and compliance with the rules and regulations. If an application conforms to the rules and regulations, it is accepted. If it does not, more information is requested, or it is returned to the applicant with an explanation. The applicant then has the option of correcting the deficiency and resubmitting the application within the program's established deadline.

2. *Is the project technically feasible?*

   An *ad hoc* committee may review the applications for technical feasibility. The committee consists of at least two persons qualified to evaluate applications in each of the six renewable energy categories: solar, wind, wood, water, geothermal, and biomass. In general, there are two independent technical reviews. In addition, the program staff reviews all applications.

3. *Does the project show potential for practical application?*

   The Alternative Energy Advisory Council (AEAC), which is a five-member council appointed by the Governor, then reviews and evaluates the applications considering factors other than technical feasibility. The AEAC is primarily concerned with the potential for practical application and development in Montana. After conducting their evaluations independently, the members meet to discuss the applications and make their recommendations for funding to the Department.

4. *Who decides which projects will be funded?*

   The Department Director makes the final decision on which projects are funded. He considers the various reviews and evaluations and relies heavily upon the recommendations of the AEAC.

FUNDING

Funding for the Renewable Alternative Energy Program is derived from 2½% per year of the state coal severance tax through 1979; thereafter, the amount available will be 4% per year. During Fiscal Year 1976, more than $500,000 was available. It is expected that during Fiscal Year 1977 approximately $836,000 will be available. (This figure is based upon projected coal mining activities from Fiscal Note No. 80-77 prepared by the Office of Budget and Program Planning.)

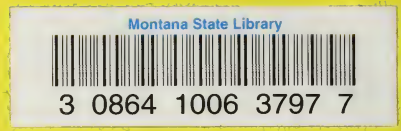
OUTLOOK

It is expected that approximately 100 more applications will be received requesting several million dollars during the application submittal period ending February 15, 1977, and another 30 to 40 projects may well be started by the end of June 1977.

Contacts are also being made at this time by the Managing Director of the Montana Energy and MHD Research and Development Institute, Inc., and the Program Manager to obtain matching federal money for the Renewable Alternative Energy Program. Initial contacts with new Energy Research and Development Administration officials indicate an interest in matching state funds with three to five times as much federal funding.

As the funded projects progress, various reports and data will be submitted to the Department. These reports will be used to produce information pamphlets and brochures to inform the general public about the use of the various renewable energy systems around Montana. As the projects continue, it will become apparent which systems and technologies perform most efficiently in different parts of the state. It will then be possible to actively solicit applications for systems most applicable and useful to residents of specific areas.

The outlook for the Renewable Alternative Energy Program is very encouraging. The program can make significant contributions toward reducing the dependency on finite fossil fuels by stimulating the research, development, and demonstration of renewable energy sources.



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1976

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